



**Data distribution system for distributing data via information free zones in a television signal to be transmitted by a transmitter.**

**A. Background of the invention**

**1. Field of the invention**

The invention relates to a data distribution system for distributing data via information free zones in a television signal - to be transmitted to more than one receiver by a terrestrial or an extraterrestrial transmitter - comprising an insertion device for inserting said data to be distributed into said information free zones of said television signal, collection means for the collection and control of data presented to these collection means by various data suppliers, and transmission means for the transmission of said collected data to said insertion device.

**2. State of the art**

A data distribution system of said type is known from the reference mentioned under C., and in particular from page 86 of this publication. In this system data are distributed via a television transmitter, notably by means of the well-known teletext method according to which data are inserted into the TV signal at those places in the signal where there is no picture information, to wit in the vertical blanking interval. This interval consists of six groups of two picture lines by which a data channel is formed with a maximum net speed of transmission of 72 kbits/s. The data signal to be transmitted via said data channel is fitted in into the TV signal - originating from a TV broadcast system - by said insertion device, after which the TV signal together with the data signal is transmitted via a TV transmitter.

The data signal is (generally) formed by several data signals, originating from various data suppliers. In the known system these data suppliers present their signal to a transmission device, usually by means of modems via hired lines. The data signals coming from various data suppliers can also be combined before sending them via a hired line to the transmission device. If desired, the data signals will be presented to the transmission device via "conditional access equipment".

A drawback of the known system is that it needs special, appropriate provisions for the collection and control of data signals presented by various data suppliers.

An additional drawback of the known system is that a certain part of the total transmission capacity

is reserved by the various data suppliers, due to which a predetermined part of this (limited) transmission capacity is claimed. Consequently, also in the event that a data supplier does not present any data, the part reserved for it will not be utilised.

**B. Summary of the invention**

The object of the present invention is to obviate said drawbacks and for this purpose it provides a data distribution system for distributing data via information free zones in a television signal - to be transmitted to more than one receiver by a terrestrial or an extraterrestrial transmitter - and it comprises an insertion device for inserting said data to be distributed in said information free zones of said television signal, collection means for the collection and control of data presented to these collection means by various data suppliers, and transmission means for the transmission of said collected data to said insertion device, which data distribution system is characterised in that said collection means are formed by a public electronic mail system, comprising a plurality of electronic mailboxes, accessible to users, for introducing, reading out or mutating messages, each of said data suppliers introducing its data to be distributed as a message into at least one certain mailbox, and in that said transmission means are formed by a transmission device, which, on the one hand, keeps up, as a user of said electronic mail system, a periodic or a permanent connection with that certain mailbox of the electronic mail system, the messages in that mailbox being read out, and which, on the other hand, is connected to said insertion device, said read-out contents of the mailbox being transmitted to said insertion device.

The invention is based on the understanding that an electronic mail system can very well be used as a means for the collection and control of data signals originating from various suppliers. In addition to this, it appears that the utilisation of an already existing public facility is considerably more attractive from a business point of view (particularly economically and organisationally) than the special provisions that have to be made for this purpose. Moreover, a higher degree of utilisation of the data channel will be achieved with said transmission device than with the transmission means in the known system, for the transmission device only transmits the messages deposited by the various data suppliers into the appropriate mailbox, to the insertion device at those moments when there is

transmission capacity available in the insertion device, due to which the data channel can be fully filled up with data.

#### C. Reference

Chambers, J.P.  
BBC Datacast  
EBU Rev. Tech. (Belgium), no. 222, pp. 80-9, April 1987.

#### D. Embodiments

Figure 1 shows an embodiment of a data distribution system according to the invention, substantially formed by a (public) electronic mail system 1, a (public) telecommunication network 3 and a TV transmitter 4. This figure moreover shows a data insertion device 5 and a data transmission device 6, and besides a first data supplier 7, a second data supplier 8 and one of the many TV receivers 9.

If the first data supplier 7 wants to have a message transmitted to the receivers 9, this supplier will try to establish a connection with the electronic mail system 1 via the telecommunication network (for example a telephone network or a data network). In this mail system 1 it is - in an access monitoring device 2 - inter alia investigated if the supplier 7 is entitled to gain access to this system. If this is the case, the data supplier 7 will request to be admitted to one certain mailbox Px in the many electronic mailboxes P1...Pn of the system. The mail system investigates if the data supplier 7 is entitled to gain access to mailbox Px and to deposit a message there. After this has been found correct, the data supplier 7 deposits its message into the mailbox and then breaks the connection again. If a second data supplier 8 wants to distribute a message via the data distribution system, it will make contact with the mail system 1 in the same way as described hereinbefore and it will deposit its message there also into the mailbox Px.

The messages deposited into the mailbox Px have to be transmitted via the TV transmitter 4, which is primarily intended for transmitting TV picture and sound signals, hereinafter indicated as a TV signal and depicted in the figure by "TV", to the TV receivers. The data to be transmitted together with the TV signal are inserted, in the insertion device 5, into that TV signal, id est inserted into the information free zones of that TV signal, in conformity with CCIR Teletext standard B. It is noted that the information free zones can be information free "by nature", id est free from analogue or digital information, or zones which have

been made free from information, to wit by temporarily suppressing the relevant information in some way or other, especially for the present purpose.

The connection between the mailbox Px in the mailbox system 1 is established by the transmission device 6, which device - for example a small computer system with communication facilities - periodically dials, via the telecommunication network 3, the mail system 1 and - after having been checked by the mail system 1 - reads out the contents of mailbox Px and - after a validity check has been carried out and the result of it is positive - stores it in its own memory ("downloading"); subsequently the transmission device 6 erases the contents of mailbox Px. Next the data thus stored in the memory of the transmission device 6 are transmitted on to the insertion device 5. As indicated in figure 1, these data are transmitted on to the insertion device 5 via a direct connection; if desired, however, this can also take place via the public telecommunication network.

The data inserted into the TV signal by the insertion device 5 are transmitted by the transmitter 4 and received by the receivers 9. These receivers, which are adapted to withdraw from the received signal the data inserted at the transmitting end, are thus able to reproduce the data deposited into the mail system 1 by the data suppliers 7 and 8 and/or to process these data further (or to have them processed further).

Figure 2 corresponds with figure 1, except that the TV signal (together with inserted data, if any,) is distributed to the receivers 9 via an extraterrestrial transmitter 10 (an artificial earth satellite), which receives and retransmits the TV signal transmitted by the transmitter 4, which serves as a ground station; consequently, the real distribution function of the transmitter 4 is in fact taken over by said extraterrestrial transmitter 10.

#### Claims

A data distribution system for distributing data via information free zones in a television signal - to be transmitted to more than one receiver by a terrestrial or an extraterrestrial transmitter - comprising  
an insertion device for inserting said data to be distributed in said information free zones of said television signal,  
collection means for the collection and control of data presented to these collection means by various data suppliers, and  
transmission means for the transmission of said collected data to said insertion device,  
characterised

in that said collection means are formed by a public electronic mail system (1), comprising a plurality of electronic mailboxes (P1...Pn), accessible to users, for introducing, reading out or mutating messages, each of said data suppliers (7,8) introducing its data to be distributed as a message into at least one certain mailbox (Px), and in that said transmission means are formed by a transmission device (6), which, on the one hand, keeps up, as a user of said electronic mail system, a periodic or a permanent connection with that certain mailbox (Px) of the electronic mail system, the messages in that mailbox being read out, and which, on the other hand, is connected to said insertion device (5), said read-out contents of the mailbox being transmitted to said insertion device.

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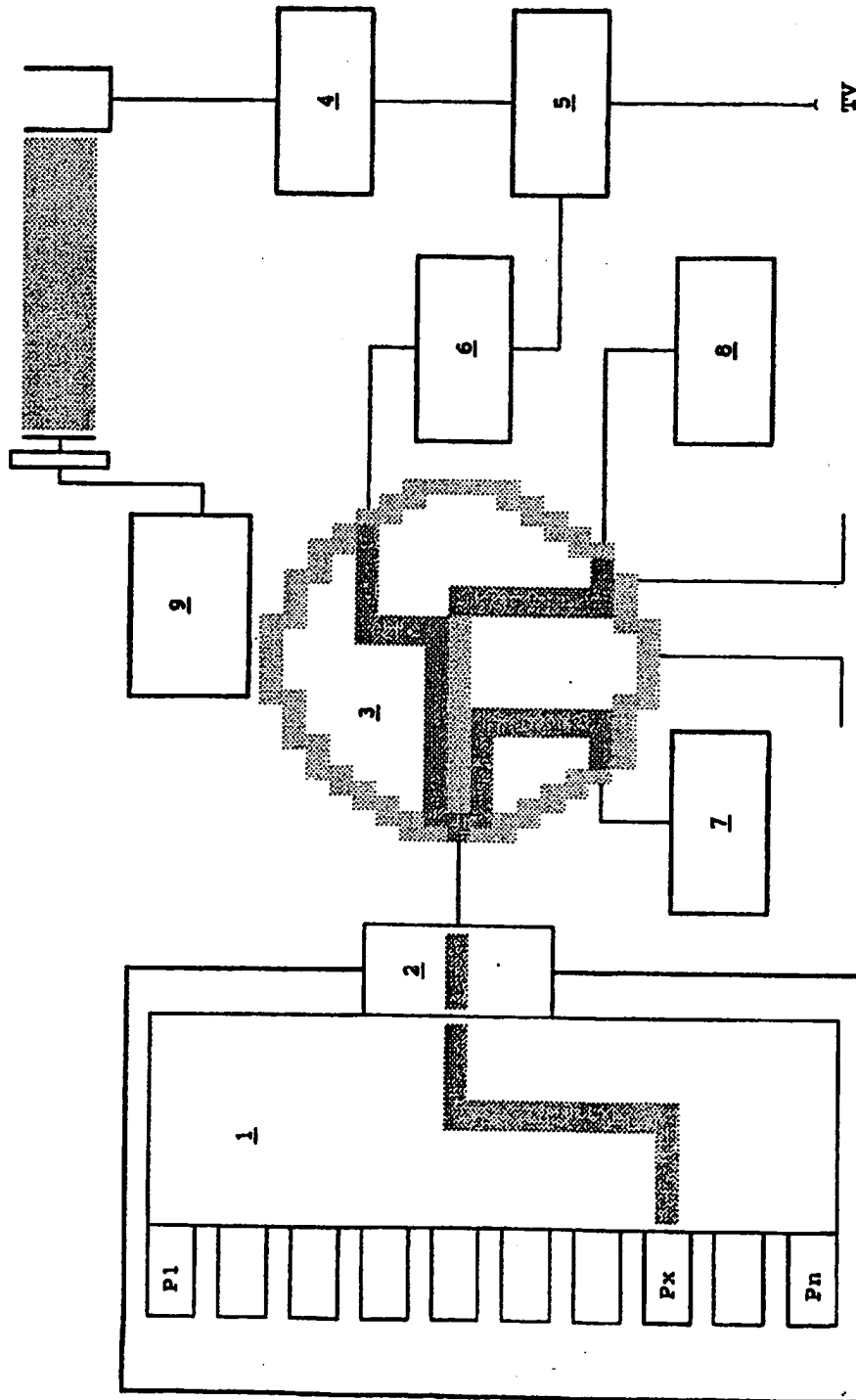
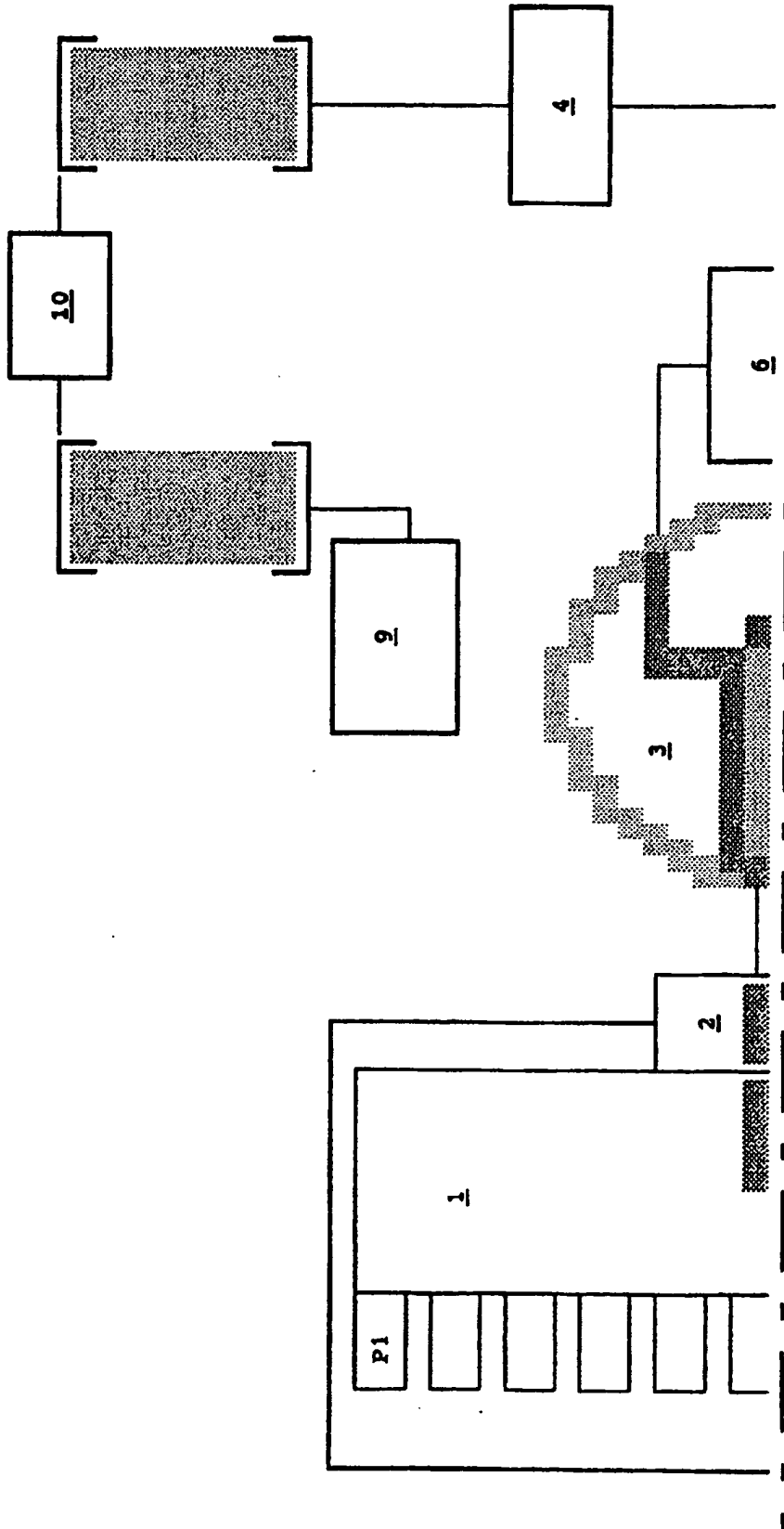


FIG. 1



**FIG. 2**



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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 1063

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The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>14-08-1990</b>	Examiner <b>VERSCHULDEN J.</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure F : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document	

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The present search report has been drawn up for all claims				
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>14-08-1990</b>	Examiner <b>VERSCHELDEN J.</b>	
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons @ : member of the same parent family, corresponding document				

EPO FORM 1501 (04/87) (page 1)





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Page 3

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The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>14-08-1990</b>	Examiner <b>VERSCHULDEN J.</b>
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